DEPARTMENT OF THE ARMY
U.S. ARMY ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

IMNE-APG-DIC

9 MAR 2006

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Aberdeen Proving Ground Asbestos Management Plan

1. Asbestos-containing material presents a potential hazard to humans, and its proper management is mandated by Federal, State and Army regulations. This memorandum provides guidance for compliance with regulations pertaining to the management of asbestos-containing materials at Aberdeen Proving Ground (APG). The enclosure provides the APG Asbestos Management Plan. Appendix A of the enclosure summarizes applicable regulations.

2. The intent of the plan is to prevent human exposure to asbestos, and must be implemented whenever repair, construction, renovation or demolition activities may impact asbestos-containing materials such as insulation, and applies to all civilian, military and contractor personnel who are involved in such activities.

3. The plan describes the composition and responsibilities of the APG Asbestos Management Team, the APG asbestos management program, and training and record-keeping requirements.

4. US Army Garrison Aberdeen Proving Ground and tenant commanders and directors will ensure their staff fully comply with the plan. There are specific definitions and requirements contained in the plan that must be read and understood to insure APG meets its compliance obligations.

5. Point of contact for this matter is Dr. Hazoor Khan, 410-306-2278.

FOR THE COMMANDER:

JOHN T. WRIGHT
Colonel, OD
Deputy Installation Commander

Encl

DISTRIBUTION:
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ASBESTOS MANAGEMENT PLAN

Prepared by:

Directorate of Safety, Health and Environment

US Army Garrison, Aberdeen Proving Ground

January 2006

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1. INTRODUCTION

a. The Department of the Army Regulation AR 200-1 delineates policy for the management of asbestos-containing materials (ACM) to prevent human exposure to asbestos hazards on Army-owned or leased properties through proactive policies which comply with all applicable laws and regulations. Aberdeen Proving Ground (APG) is required by AR 200-1 to develop policies and procedures for the control and management of asbestos-containing materials under an Asbestos Management Plan (AMP). The plan applies to friable and non-friable asbestos-containing materials.

b. The APG AMP was developed to comply with all currently applicable laws and regulations with specific provisions for: the identification and risk assessment of each location containing asbestos; the implementation of management plan procedures; the identification of training requirements for affected personnel; the conduct of training for affected personnel; the review of repair, construction, renovation, and demolition activities which may impact asbestos-containing materials; and the conduct of National Environmental Policy Act (NEPA) impact analysis. The applicability of the plan is discussed further in Section 2.

c. Implementation of the AMP is the responsibility of representatives from appropriate organizations at APG. These individuals collectively constitute the Asbestos Management Team (AMT). The AMT will execute and direct the activities required under the AMP. Further, these individuals will revise the AMP as warranted. A description of the composition and responsibilities of the AMT is located in Section 3. The overall asbestos management program is described further in Section 4.

d. Survey activities are described in Section 5. Subsequent sections discuss risk assessments (Section 6), operations and maintenance activities (Section 7), procedures for fiber release reporting (Section 8), training requirements (Section 9) and record-keeping (Section 10).

e. Relevant regulations and guidance are summarized in Appendix A, and a Glossary of Terms is included in Appendix B.

2. APPLICABILITY

a. The AMT will implement the AMP whenever repair, construction, renovation, or demolition activities that may impact asbestos-containing materials occur. The AMT will review facility asbestos inspection records, or oversee new inspections to determine the quantity and nature of asbestos-containing materials involved and decide the best method of managing the asbestos.

b. Asbestos abatement will be performed whenever asbestos-containing materials are impacted by repair, construction, renovation, or demolition activities. The AMT will oversee that abatement projects are conducted in accordance with APG's AMP as well as applicable Federal, State and Army regulations and regulatory guidelines. A list of the AMT responsibilities pertaining to the oversight and management of abatements is located in Section 3. A list of acceptable abatement work practices is included in Section 7.

3. RESPONSIBILITIES

3-1. Overview

a. Individuals with responsibilities under this AMP include a Project Manager from the DIO Construction Division, asbestos technicians, one Environmental Support Specialist from the DSHE Environmental Compliance Division, one Safety Specialist from the DSHE Installation Safety Division, and one Industrial Hygienist from the Kirk Army Health Clinic. These individuals will be responsible for management of asbestos materials and abatement projects in accordance with the AMP, and will collectively constitute the AMT.

b. As per Public Works Technical Bulletin (PWTB) 420-70-8, Chapter 3 *Implementing An Installation Asbestos Management Plan*, Section 3.3 – The AMT is comprised of personnel who in the normal course of their work have become familiar with the building, building functions and maintenance issues (including housekeeping) ACM and their locations, and are aware of any pending construction and/or renovation projects, etc. Work orders must be submitted for all projects prior to their initiation. Such a policy will minimize the unknowing or unintentional disturbance of ACM. It is also the responsibility of the AMT to prepare asbestos abatement specifications and review asbestos abatement contractors' submittals and work plans.

c. According to AR 200-1 the AMT is also responsible for the program budget resources to identify, manage and control exposure to asbestos, and conduct periodic surveys to identify the existence, extent, and condition of all asbestos. As a priority, conduct asbestos surveys in all housing units in those buildings which will be renovated, demolished, or transferred from Army use. The AMT is also responsible for an exposure and risk assessment, preparation and implementation of an asbestos abatement plan and special O&M for each location containing asbestos. Provisions for worker education/training programs meeting mandatory training requirements specified in 40 Code of Federal Regulations (CFR) Part 763, Model Accreditation Plan, are furthermore the responsibility of the Asbestos Management Team. Additionally it is the responsibility of the AMT to conduct a NEPA environmental impact analysis of the AMP, as described in Environmental Effects of Army Actions (AR 200-02) and/or Procedures for Implementing NEPA (ER 200-2-2).

d. The representatives listed below will be responsible for satisfying the program responsibilities and organizational requirements for management of asbestos hazards. They will coordinate the actions with other organizational representatives as needed

e. These representatives may fulfill their responsibilities under the AMP on a part-time or full-time basis.

f. The AMT shall meet at regularly scheduled intervals to review compliance with the requirements of the plan. The responsibilities within the team are identified below.

3-2. DIO – Construction Division Project Manager

a. General Responsibilities

(1) Develop scope of work, request funding, work prioritization, and accomplish the work using in-house resources or contract support.

(2) Comply with the AMP Requirements.

(3) Ensure Team is notified of all activities that involve the removal or modification of asbestos containing materials and insure the inventory is updated.

(4) Responsible for executing the Program and Plan within available funding.

b. Material Inventory

(1) Review current inventory, update deficiencies, perform additional surveys and sampling as funding is available.

(2) Maintain the installation wide asbestos inventory.

(3) Update the inventory as additional sampling is performed or asbestos is removed.

(4) Re-inspect asbestos containing materials as requested and funds are available to ensure the inventory reflects the current condition of asbestos containing materials.

(5) Ensure risk assessments are performed on damaged asbestos containing materials. Design and oversee corrective procedures for immediate exposure hazards.

c. Project Supervision

(1) Provide technical supervision for all contracted and in-house asbestos abatements.

(2) Coordinate with Garrison and Tenant organizations to delineate which areas of building components will be impacted by maintenance, construction, or renovation where asbestos disturbance is involved.

(3) Identify building materials or building components which are regulated as asbestos containing materials.

(4) Quantify location and type of asbestos containing material to be abated.

(5) Perform work practice and compliance inspections on all abatements.

(6) Review Federal, State and Army regulations and guidelines applicable to the project; these are summarized in Appendix A.

d. Recordkeeping

(1) Review and maintain abatement records as applicable to ensure regulatory compliance and maintain asbestos materials inventory to include project monitoring logs of work activities and progress as well as air monitoring records. In-house project records are to be reviewed by the PM and will maintain within their control.

(2) Maintain all contractor submitted documentation for contracted abatements.

(3) Maintain written copies of evaluations of contractor submitted documentation for contracted abatements.

(4) Maintain and ensure training records, air monitoring records, and fit test records for all Government asbestos workers.

(5) Maintain evidence used to rebut Presumed Asbestos Containing Materials (PACM). Sampling records showing presumed materials do not contain asbestos over the regulatory threshold.

(6) Ensure storage in accordance with applicable regulatory requirements all records pertaining to asbestos abatement, including work progress logs, air monitoring records, and waste manifests.

e. For contract work -

(1) Prepare Scopes of Work, government cost estimates for all asbestos projects. Serve as COR/TCOR for the projects.

(2) Request funding.

(3) Evaluate contractor submittals.

(4) Ensure contractor submittals contain–

(a) Project phasing and timetable.

(b) Emergency Response Plan.

(c) Respiratory Protection Program.

(d) Medical respirator authorization.

(e) Respirator Fit Test records.

(f) Training documentation.

(g) Licensing.

(h) Proof of Insurance.

(i) Regulatory notifications.

(j) Qualifications and training of a project monitor / industrial hygienist.

f. Notifications

(1) Make regulatory notifications as required for in-house abatements.

(2) Ensure building occupant notifications are made.

g. Training

(1) Maintain certification as a State of Maryland Asbestos Supervisor and Project Designer.

(2) Maintain certification as a State of Maryland Asbestos Inspector and Management Planner.

(3) Ensure maintenance/housekeeping personnel are properly trained.

(4) Review in-house asbestos workers training.

3-3. Asbestos Technician. The Asbestos Technicians will assist the DIO Project Manager.

a. Project Support

(1) Assist the project with any responsibilities regarding the management of asbestos, as requested.

(2) Ensure there is physical isolation of abatement areas to prevent unauthorized access by untrained personnel.

(3) Verify that containments are constructed in such a manner as to prevent asbestos fiber release into surrounding occupied areas.

(4) Ensure building electrical and mechanical systems are shut down as necessary to prevent asbestos fiber migration into occupied areas.

(5) Provide electrical / mechanical system Point of Contacts to contracted abatement.

(6) Conduct regular inspections of the work area to ensure applicable regulations are enforced.

(7) Coordinate and receive Project Manger's written approval on all abatement activities to include phased inspections and regulatory compliance.

b. Inspections

(1) Collect asbestos bulk sampling as needed.

(2) Include bulk sample analysis records into the asbestos inventory and forward to PM.

c. Training

(1) Maintain certification as a State of Maryland Asbestos Inspector.

(2) Maintain certification as a State of Maryland Asbestos Supervisor.

3-4. Environmental Compliace Division

Environmental Compliance Division representative will be responsible for the following –

a. Coordinate the revision of the AMP as necessary in response to changes in regulations or regulatory policy, feedback from other responsible individuals, or findings of the compliance inspections.

b. Provide waste characterization and disposal guidance.

c. Perform inspections for compliance with environmental regulations.

d. Approve and audit as necessary landfill sites that accept asbestos containing waste.

3-5. Installation Safety Division

Installation Safety Division representative will be responsible for the following –

a. Perform inspections for compliance with safety regulations.

b. Fit test government abatement workers.

c. Provide worker health and safety support when requested.

d. Respond to Community Complaints under PM guidance.

3-6. Kirk US Army Health Clinic

a. Perform respirator authorization.

b. Review the contractor's data.

c. Perform medical surveillance for government employees.

3-7. DIO Contractor

The Contracting Officer's Representative (COR) will coordinate with the DIO-Construction Division PM on all matters relating to performing asbestos abatement at Aberdeen Proving Ground. The contractor will ensure the following -

a. Pre-award Responsibilities

(1) Submit copies of all documentation requested to the COR in a timely manner.

(2) Update or revise plans, phasing, and project timetable as necessary.

b. Post-award Responsibilities / During Abatement

(1) Maintain a log of daily work progress.

(2) Provide air monitoring during all abatement work.

(3) Perform routine annual Industrial Hygiene sampling for in-house work.

(4) Allow PM or designees full access to the work area at all times.

(5) Ensure site security and limit physical access of unauthorized personnel into the abatement area.

(6) Perform abatement work in accordance with Federal, State and Army regulations and guidelines applicable to the project; current regulations are summarized in Appendix A. However, it is the contractor's responsibility to perform abatement work in accordance with the latest regulations applicable at the time the work is performed

(7) Provide final clearance air monitoring results to the COR and request Government approval before demolishing containments.

c. Upon project closeout, provide copies of the following records to the COR -

(1) Daily project logs

(2) Air monitoring records

(3) Waste manifests

(4) As-built or post-abatement drawings as specified in contractor documents

4. ASBESTOS MANAGEMENT PROGRAM OVERVIEW

The Asbestos Management Program is a responsible alternative to asbestos removal by implementing procedures to control exposure to asbestos-containing materials. Where removal activities are required, the program allows for the review of asbestos abatement specifications and contractor qualifications prior to the initiation of those activities. To insure consistency of implementation throughout facilities controlled by Aberdeen Proving Ground, all applicable organizations must adopt the policies and procedures contained in the plan.

4-1. Purpose and Scope

The principal objective of an AMP program is to minimize exposure of all building occupants and contractors working in the building to asbestos fibers. To accomplish this objective, an AMP includes work practices to–

a. Maintain ACM in good condition.

b. Ensure proper clean-up of asbestos fibers previously released.

c. Prevent further release of asbestos fibers.

d. Monitor the condition of ACM.

e. Implement a Work Permit System.

f. Ensure proper clean-up of asbestos fibers previously released.

g. Prevent further release of asbestos fibers.

h. Monitor the condition of ACM.

i. Implement a Work Permit System.

4-2. Policy and Organization

To ensure success, there must be a formal decision at the topmost level of facility management to adopt the AMP as a matter of policy. This gives the program legitimacy within the organization and insures that the Asbestos Program Manager (APM) will be given adequate authority to implement the program. A specific administrative position must be given the responsibility for the AMP. It is best if this position already has the authority necessary to implement the program. This position must have effective control over activities that could impact on the ACM in the facility. At a minimum, this position needs to have control over internal maintenance and cleaning personnel, outside maintenance contractors and renovation projects. Aberdeen Proving Ground's organizational responsibilities were described in Section 3.

4-3. Recordkeeping

The Asbestos Program Manager and the AMT will be responsible for maintaining documentation concerning the management of asbestos containing materials at APG. Documentation will be needed for the following–

a. Program Operation. The activities of the program shall be documented. These include documentation of the use of work practices, personnel, areas and systems involved.

b. Program Effectiveness. The level of consistency with which control methods are used shall be documented. The level of isolation provided to controlled areas shall be documented. Air sample results collected during work and background air sampling conducted on a periodic basis to document the overall effectiveness of the control methods used must be maintained.

c. Material Inventory. During the course of the Asbestos Management Program, a great deal of detail concerning the location and condition of ACM will be generated as work is performed. This information shall be integrated in the ACM inventory. As ACM is removed the inventory shall be updated. Drawing of locations of ACM must be updated periodically and at the completion of each asbestos abatement activity to track ACM as they are removed from the building.

d. Regulatory Compliance

(1) Aberdeen Proving Ground must comply with OSHA, EPA National Emission Standards for Hazardous Air Pollutants (NESHAP), and MDE asbestos regulations. The documentation must be adequate to demonstrate compliance with all applicable regulations. The documentation is used to evaluate and improve the Management Plan.

(2) It is incumbent upon the Project Manager to become familiar with the requirements of current asbestos regulations, so the facility will be assured of maintaining regulatory compliance. A summarization of Federal, State, and Army regulations and regulatory guidelines can be found in Appendix A.

5. SURVEY ACTIVITIES

5-1. Building Surveys

a. A comprehensive asbestos survey must be conducted at APG as required per AR 200-1, Chapter 8 (Environmental Protection and Enhancement). The Army's Standard Scope of Work is included in Appendix C. Additionally, the Occupational Safety and Health Administration (OSHA) requires that materials known to contain asbestos, or that should have been known by exercise of due diligence, be identified. The Asbestos School Hazard Abatement Reauthorization Act (ASHARA) requires that all asbestos inspections conducted in public and commercial buildings, as well as in schools, be performed by an EPA-accredited asbestos inspector. The accredited inspector requirement does not apply to visual or physical examinations of resilient floor covering material when conducted as part of the process of replacing an existing floor where the

exercise of due diligence, be identified. The Asbestos School Hazard Abatement Reauthorization Act (ASHARA) requires that all asbestos inspections conducted in public and commercial buildings, as well as in schools, be performed by an EPA-accredited asbestos inspector. The accredited inspector requirement does not apply to visual or physical examinations of resilient floor covering material when conducted as part of the process of replacing an existing floor where the material has not been sanded, ground, mechanically chipped, drilled, abraded, or cut. Each facility must be surveyed to determine the location, quantities, and condition of asbestos-containing materials. The primary goal of the asbestos survey is to identify asbestos containing materials, regardless of their condition, that presents an exposure potential in occupied buildings.

b. *It is important to note that the presence of ACM in a facility does not necessarily constitute a health hazard. Asbestos Containing Material in good condition need not be removed; however, it must be documented, monitored, and controlled to prevent deterioration or damage that could result in a release of asbestos fibers. The intent is to minimize situations where its presence could cause health problems for occupants. This program does not require removal of all ACM from APG Installation facilities. It integrates the management of the material into the AMP with removal accomplished as part of the normal building upgrade, repair, or demolition.*

c. Surveys must be conducted by an accredited inspector following AHERA protocol. This includes–

(1) Visually inspecting each area to identify the locations of all suspected ACM.

(2) Touching all suspected ACM to determine whether they are friable.

(3) Identifying all homogeneous areas of friable suspected ACM and all areas of nonfriable suspected ACM.

(4) Assuming that some or all of the homogeneous areas are ACM, and, for each homogeneous area that is not assumed to be ACM, collect and submit bulk samples for analysis.

(5) Assessing friable material in areas where samples are collected, friable material in areas that are assumed to be ACM, and friable ACM identified during previous inspection.

(6) Recording the following and submitting to the person designated a copy of such record for inclusion in the management plan within 30 days of the inspection –

(a) An inspection report with the date of the inspection signed by each accredited person making the inspection, State of accreditation, and if applicable, his or her accreditation number.

(b) An inventory of the locations of the homogeneous areas where samples are collected, exact location where each bulk sample is collected, dates that samples are collected, homogeneous areas where friable suspected ACBM is assumed to be ACM, and homogeneous areas where nonfriable suspected ACBM is assumed to be ACM.

(c) A description of the manner used to determine sampling locations, the name and signature of each accredited inspector who collected the samples, State of accreditation, and, if applicable, his or her accreditation number.

(d) A list of whether the homogeneous areas identified are surfacing material, thermal system insulation, or miscellaneous material.

(e) Assessments made of friable material, the name and signature of each accredited inspector making the assessment, State of accreditation, and if applicable, his or her accreditation number.

5-2. Survey Protocol

All asbestos surveys must be performed by a State of Maryland accredited inspector. For each homogenous area identified that is not assumed to be ACM, the accredited inspector shall sample according to the following–

a. Surfacing Material

(1) At least three bulk samples shall be collected from each homogeneous area that is 1,000 ft^2 or less.

(2) At least five bulk samples shall be collected from each homogeneous area that is greater than 1,000 ft^2 but less than or equal to 5,000 ft^2.

(3) At least seven bulk samples shall be collected from each homogeneous area that is greater than 5,000 ft^2.

b. Thermal System Insulation

(1) At least three bulk samples from each homogeneous area of thermal system insulation that is not assumed to be ACM.

(2) Collect at least one bulk sample from each homogeneous area of patched thermal system insulation that is not assumed to be ACM if the patched section is less than 6 linear or square feet.

(3) In a manner sufficient to determine whether the material is ACM or not ACM, collect bulk samples from each insulated mechanical system that is not assumed to be ACM where cement or plaster is used on fittings such as tees, elbows, or valves.

(4) Bulk samples are not required to be collected from any homogeneous area where the accredited inspector has determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACBM.

c. Miscellaneous Material: In a manner sufficient to determine whether material is ACM or not ACM, an accredited inspector shall collect bulk samples from each homogeneous area of friable miscellaneous material that is not assumed to be ACM.

d. Nonfriable Suspected ACM: If any homogeneous area of nonfriable suspected ACBM is not assumed to be ACM, then an accredited inspector shall collect, in a manner sufficient to determine whether the material is ACM or not ACM, bulk samples from the homogeneous area of nonfriable suspected ACBM that is not assumed to be ACM.

5-3. Laboratory Analysis

a. All samples of suspected material shall be analyzed for asbestos by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited lab. Each sample should be marked with a unique identification number which should be recorded on bulk sampling sheets. All samples should be submitted with a completed laboratory chain of custody form.

b. Samples should be analyzed using Polarized Light Microscopy (PLM) following the revised EPA Method 600/R-93/116. Samples that are analyzed and contain less than 10% asbestos using a visual estimate under Method 600 may be further analyzed utilizing the Point Counting Method following EPA Method 198.1. A homogeneous area is considered not to contain ACM only if the results of all samples required to be collected from the area show asbestos in amounts of 1 percent or less. A homogeneous area shall be determined to contain ACM based on a finding that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than 1 percent.

6. RISK ASSESSMENTS

a. Information generated from building surveys shall form the basis for determining appropriate maintenance, construction, demolition, and/or health activities. However, further surveys and investigations shall be conducted whenever and wherever it is determined that further information is required in order to safely conduct these activities. In addition, further general area surveys may be required in the future. Priority for these surveys shall be–

(1) Facilities where there is, or is expected to be, an activity that increases the potential for damage to friable asbestos material, including areas subject to modifications by in-service or contractor personnel.

(2) Facilities known or suspected to contain sprayed-on fireproofing, other surfacing material, or friable material.

(3) Facilities not thoroughly inspected previously.

b. Prior to conducting any activity that will have the potential to disturb any existing suspect asbestos building materials, the project manager will conduct a visual inspection of the project building shall be made by a member of the Asbestos Management Team. The inspection is to identify any friable material that may contain asbestos, noting especially any hidden or confined

areas, such as above drop ceilings and in equipment rooms. Since friable asbestos material has a higher potential for fiber release, inspection efforts will concentrate on sprayed or troweled-on surfacing material and damaged or exposed insulation on pipes, ducts, boilers, and tanks. This inspection will include only those areas that are accessible without removing any permanent building components, structures or placing holes in ceilings, floors, or walls. If friable materials are present, an evaluation of the condition and potential for fiber release shall be conducted by the project manager. When necessary, bulk samples of suspected material shall be analyzed for asbestos by a NVLAP accredited lab. Information and data gathered during the inspection, including negative findings, shall be used to update the building file.

c. Aberdeen Proving Ground will use the established criterion in AHERA to assess and rank the current condition of ACM at its facilities. AHERA methodology is accepted throughout the industry and clearly the highest regulatory standard.

d. According to Asbestos Hazard Emergency Response Act methodology, for each homogeneous area identified, the inspector shall assess the current condition of the material and classified it into one of seven categories defined in "Asbestos-Containing Materials in Schools; Final Rule and Notice" (40 CFR 763.88). The level of potential disturbance is assigned based on accessibility, potential for contact, influence of vibration, and potential for air disturbance. The seven categories of ACM are –

(1) Damaged or significantly damaged thermal system insulation ACM.

(2) Damaged friable surfacing ACM.

(3) Significantly damaged friable surfacing ACM.

(4) Damaged or significantly damaged friable miscellaneous ACM.

(5) ACM with the potential for damage

(6) ACM with the potential for significant damage

(7) Any remaining friable ACM or friable suspected ACM.

e. Finally, the inspector assigns a Hazard Rank by based on the condition and potential for disturbance factors on the Hazard Rank Matrix shown below–

(1) Hazard Rank 1 -ACM is in good condition and has a low potential for damage.

(2) Hazard Rank 2 -ACM is in good condition and has a potential for damage.

(3) Hazard Rank 3 -ACM is in good condition and has a potential for significant damage.

(4) Hazard Rank 4 -ACM is moderately damaged and has a low potential for further damage.

(5) Hazard Rank 5 -ACM is moderately damaged and has a potential for further damage.

(6) Hazard Rank 6 -ACM is moderately damaged and has a potential for significant damage.

(7) Hazard Rank 7 -ACM is significantly damaged.

f. This assessment is used by a management planner to identify the response actions required for each homogeneous area of confirmed or presumed ACM. An asbestos hazard determination guideline must provide a measure of hazard severity (hazard index) that allows the APM to prioritize facilities and structures in terms of the need for asbestos abatement. In addition, an asbestos hazard determination guideline provides a list of factors that the AMT should consider in its decisions on corrective action.

g. The economic benefits of asbestos abatement may be realized by coordinating the abatement with other activities, such as building expansion, repair, alteration, or demolition. Conversely, when ACM needs immediate abatement, this cost may be shared with other Management Plan costs such as HVAC repairs, building system repairs or major and minor renovations.

h. The Hazard Index can also be compared with traditional corrective action strategies to set priorities for asbestos abatement. Using the Hazard Ranking, the recommended management corrective actions are shown in Table 1.

TABLE 1 Recommended Response Action Selection

HAZARD RANKING	**Recommended Response Action**
1	Operations and Maintenance (O&M)
2	O&M, Removal, Enclosure, Repair
3	O&M, Removal, Enclosure, Repair
4	Removal, Enclosure, Repair
5	Removal, Enclosure, Repair
6	Removal, Repair, Enclosure
7	Removal

i. The Asbestos Program Manager will develop an asbestos abatement priority list based on the Hazard Ranking of each area surveyed. The priority list establishes the order in which APG facilities will require asbestos abatement. The AMT will recommend the type of asbestos abatement action (removal, enclosure, O&M or repair) needed and discuss the priority list with their appropriate managers and all other interested parties. Updates of the priority list will occur as determined by the AMT.

7. OPERATIONS AND MAINTENANCE ACTIVITIES

a. Asbestos-containing materials have been identified at APG. Asbestos building surveys are on file in Aberdeen Area Building 5458.

b. The intentional or unintentional disturbance of these materials is regulated by OSHA, and depending upon the extent of the disturbance, would involve Class I (work involving asbestos surfacing or TSI materials), Class II (all asbestos-containing materials other than surfacing material or TSI) or Class III asbestos activity (minor disturbance of ACM associated with repair or maintenance).

7-1. Work Control / Permit System

a. Work practices included here are designed to avoid the disturbance of ACM, so that asbestos fiber release will be insignificant and will not present a worker safety or environmental problem. Aberdeen Proving Ground personnel, including custodial (housekeeping) and maintenance staff should carefully follow prescribed procedures, so as to prevent any disturbance of existing ACM within the facility.

b. For all work that may have an impact on ACM, with the exception of emergency repair, requiring immediate attention, the following procedures shall be followed.

c. Prior to the start of any work that may impact any ACM, the person requesting the work must submit a Facilities Engineering Work Request Form to the APM. Furthermore, the Asbestos Procedures/ Review form must be completed by the individual or organization initiating the work request. The forms shall identify the location and time when the work is to be preformed, the reason for the work (i.e. routine maintenance/repair, renovation), and available information about any ACM in the vicinity of the work. The contractor or other persons authorized to perform the work shall also be identified on the work request form.

d. Upon receiving the pre-work Asbestos Procedures/ Review form, the APM and/or Safety Manager shall take the following steps –

(1) Survey and/or reports to determine whether ACM is in the area where the work will occur. If ACM is present, but is not anticipated to be disturbed, the APM shall note the presence of the ACM on the permit form and provide additional instruction on the importance of not disturbing the ACM.

(2) If ACM is both present and likely to be disturbed, the APM or the designated supervisor qualified by training and/or experience, shall visit the site and determine what work practices shall be instituted to minimize the release of asbestos fibers during the work activity.

(3) The determination shall be recorded on the Work Request Form, which is sent to the In-House Asbestos Team Leader or the asbestos contractor to authorize the work.

(4) The APM shall place a copy of the request and authorization forms (if granted) in a permanent file for the building, located in the Environmental Management Office or other designated location. This file shall be updated continually to ensure all asbestos work is efficiently tracked.

(5) Where the task is not covered by previously approved standard work practices (i.e. emergency repairs), the APM shall make sure that the appropriate work practices and protective measures are in place.

(6) For all jobs where contact with ACM is expected, the APM or the designated supervisor qualified by training and/or experience shall visit the work site when the work begins to ensure that the job is being properly performed. For lengthy jobs where contact with ACM is intended (i.e. removal of ACM for renovation purposes) periodic inspections shall be made for the duration of the project.

(7) The APM observations shall be noted on the Asbestos Procedures/ Review form and the Work Request Form. Any deviation form standard and approved work practices shall be recorded immediately on this form and the work practices shall immediately be corrected and reported to the APM.

e. Upon completion of the work, a copy of the evaluation form(s) shall be placed in a permanent asbestos file for the building.

7-2. Special Cleaning Techniques

Special techniques to clean up asbestos fibers on a routine basis are mandated by OSHA in its General Industry and Construction Standards. They include–

a. All surfaces shall be maintained as free as practicable of ACM waste and debris and accompanying dust.

b. All spills and sudden releases of material containing asbestos shall be cleaned up as soon as possible.

c. Surfaces contaminated with asbestos shall not be cleaned by the use of compressed air.

d. Vacuuming. High Efficiency Particulate Air-filtered vacuuming equipment shall be used for vacuuming asbestos containing waste and debris. The equipment shall be used and emptied in a manner, which minimizes the reentry of asbestos into the workplace.

e. Engineering controls. Prior to vacuuming asbestos debris, the area shall be wetted with an amended water solution to minimize airborne asbestos fibers. Where feasible, a HEPA equipped air filtration device shall be utilized to reduce asbestos airborne fibers.

f. Shoveling, dry sweeping and dry clean-up of asbestos may be used only where vacuuming and/or wet cleaning is not feasible.

g. Waste disposal. Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with asbestos consigned for disposal, shall be collected, recycled and disposed of in sealed impermeable bags, or other closed, impermeable containers.

h. Care of asbestos-containing flooring material.

(1) Sanding of asbestos-containing floor material is prohibited.

(2) Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

(3) Burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish, so that the pad cannot contact the asbestos-containing material.

i. Waste and debris and accompanying dust in an area containing accessible ACM/PACM or visibly deteriorated ACM, shall not be dusted or swept dry, or vacuumed without using a HEPA filter.

7-3. Work Practices for Custodial Personnel

Asbestos-containing flooring material is the most common type of ACBM identified at APG and a variety of ACM tiles are present in numerous locations throughout the grounds. Generally, existing ACM floor tiles are undamaged and remain non-friable. Overall, these materials are in very good condition. In order to maintain them as such, and to prevent any disturbance of ACM and subsequent fiber release, the following procedures shall be followed when wet stripping floor wax, dry or spray buffing, and cleaning resilient asbestos flooring.

7-4. Specialized Work Procedures for Non-Friable Materials

a. Non-friable asbestos materials (i.e., floor tile and mastic, transite wainscot panels, and perforated transite acoustical tiles, etc.) are not to be drilled, sanded, mechanically chipped, or abraded. Nor should they be intentionally broken. Vacuums equipped with HEPA filters, disposable dust bag, and a metal floor tool (no brush) shall be used to clean floors where asbestos dust (from significantly deteriorated flooring or some other source) is present. Dry sweeping of asbestos dust is prohibited.

b. The removal of asbestos flooring, roofing, transite, and other non-friable asbestos-containing materials is considered to be a Class II activity under the OSHA Asbestos Standard for Construction. Although such removal may not technically be regulated under EPA NESHAP and Maryland asbestos regulations, OSHA mandates that special training be received by those performing the work and that very specific procedures be applied to the removal process. This type of work shall not be undertaken by APG staff or other contract personnel, unless workers are properly trained for the specific type of material being removed or otherwise disturbed.

7-5. Use of Contract Asbestos Abatement Contractors

a. The AMP shall include control over contracted services.

(1) Custodial Work: Contractors involved in cleaning and other custodial services which are in the vicinity of, but do not disturb asbestos containing installations, debris or dust shall be notified of the location of ACM. This notification shall be signed by the contractor who employs the workers and returned to the Asbestos Program Manager for documentation of the notification.

(2) Repair and Maintenance: Repair or maintenance in controlled areas or on controlled systems must involve specific work procedures using trained workers. The National Institute of Building Sciences (NIBS) Publication, *Model Guide Specifications for Asbestos Abatement and Management in Buildings,* contains detailed information on contracting this type of work. Detailed specifications can also be developed from the work practices in this manual. Specifications can then be attached to a purchase order or made part of a set of a contract documents.

b. A convenient method for acquiring outside contract services is by use of an annual service contract for the asbestos O&M services. Unit prices can be established for each work activity based upon specified work practices. Pricing for an O&M activity can then be determined by applying the unit price to the quantity of work performed. For example, there may be a unit price for removal of pipe insulation using glovebags. The cost of the work can be determined by multiplying the cost per glovebag removal by the number of glovebag removals performed. The Army can bid this contract on an annual basis. This permits the Army to acquire the required services quickly when needed and still have competition control costs.

c. A contractor is liable for the safety of those working for him. However, if improperly drawn up, the contract between the Army and contractor can transfer part of this liability to the Army. This frequently occurs due to work specifications that attempt to be over-protective or ensure OSHA compliance without adequately defining the role of the contractor as the protector of his employee. If, for example, the specification called for worker protection or respiratory protection procedures to be approved by the Army, this could potentially transfer some of the responsibility for the effectiveness of these measures to the Army. The Army is responsible for notifying the contractor, who is in turn responsible for notifying his employees. The standard procedures for contracting maintenance services must include submittals from the contractor to

the Army demonstrating compliance with worker and respiratory protection requirements. The designer of a Management Plan who is going to contract out asbestos control work should review the discussion in the introduction to the NIBS *Model Guide Specifications for Asbestos Abatement and Management in Buildings,* on owner, designer and contractor liabilities.

8. PROCEDURES FOR FIBER RELEASE EPISODES

a. If any ACM is disturbed, the APG APM shall arrange for emergency procedures to be employed, in order to address the hazard. Ideally, the facility shall isolate the area and promptly communicate accurate and pertinent information necessary to bring in trained personnel to handle the situation. Major scale fiber release (greater than 3 square feet or 3 linear feet) episodes must be performed, supervised, and designed by AHERA accredited personnel in accordance with 40 CFR 763.91 (f)(1) and (f)(2).

b. In the event of an asbestos fiber release episode, the following steps shall be taken –

(1) Aberdeen Proving Ground personnel discovering the fiber release or an activity about to take place, which is likely to cause a fiber release, shall immediately notify their first line supervisor. The supervisor shall report the incident to the Asbestos Program Manager (410- 436-4833) for further evaluation and action.

(2) Notify the APG Installation Safety Office (410-306-1082) if there is a potential for employee exposure to asbestos fibers. If it is deemed necessary, the Installation Safety Office shall arrange for industrial hygiene support.

(3) Isolate the area from the rest of the building by closing and securing a door, or by placing some other type of temporary barrier to prevent entry into the area.

(4) If the HVAC system serving this area (supply, return, and exhaust) can be shut down, do so, and perform lock-out and tag-out procedures.

(5) An asbestos warning sign shall be placed at all access points to the regulated area, to prevent entry by unauthorized personnel.

(6) The APM shall arrange for properly trained APG personnel, or a professionally trained asbestos contractor having the technical skills, experience and specialized equipment to handle the situation.

c. These incidents must be directly handled by individuals who are properly trained and accredited to do so, and furthermore, many states, and local jurisdictions require that the business entity or public unit performing asbestos-related work be licensed.

9. TRAINING REQUIREMENTS

a. Proper training for custodial and maintenance workers is one of the keys to a successful Management Plan. If APG management does not emphasize the importance of well trained

custodial and maintenance personnel, tasks involving asbestos-containing materials may not be performed properly or ACMs or PACMs may be inadvertently disturbed. This could result in a release of asbestos fibers in the building air and create an increased risk for both building workers and other occupants.

b. Both OSHA and EPA require worker training programs for all employees who are exposed to airborne concentrations of asbestos, which exceed the PEL (0.1 fibers per cubic centimeter 8 Hr. TWA) or the excursion limit (1.0 fibers per cubic centimeter over 30 min.). The OSHA training requirements are based upon the kinds of activities that individuals perform in the workplace. A clear distinction is made between those individuals who perform custodial work where cleaning and simple maintenance tasks may accidentally disturb ACM, and those workers who are involved in general maintenance and repair tasks, which clearly disrupt the matrix of asbestos- containing materials. Components of appropriate training are based upon requirements that were established originally under the EPA's AHERA regulation governing asbestos in schools.

c. Aberdeen Proving Ground maintenance staff will only perform those asbestos-related activities that meet the criteria of Class III or IV work under OSHA. Typically, training for work involving the disturbance of small amounts of asbestos can be achieved in a 16 hour program, as described in 29 CFR 1926.1101(k)(9)(v). In addition, at least one (1) member of the APG maintenance staff should be accredited as an AHERA Asbestos Supervisor, to ensure compliance with training for the competent person.

d. Contracted maintenance and housekeeping personnel who will only be performing activities where cleaning and simple maintenance tasks (Class IV work) may accidentally disturb ACM; required training can be accomplished through a basic awareness program of two (2) hours duration. To ensure that information specific to APG is conveyed to contractor personnel, the initial program should be presented on site by the Asbestos Program Manager or a designated representative. Any employee who is not available for the single training session or any newly hired employee must receive awareness instruction at the time of hire or assignment.

9-1. Housekeeping and Custodial Personnel

Installation management must provide, at no cost to employees who perform housekeeping operations in an area that contains ACM or PACM, an asbestos awareness training course. At a minimum, this course shall contain the following elements–

a. Health effects of asbestos.

b. Locations of ACM and PACM in the building/facility.

c. Recognition of ACM and PACM damage and deterioration.

d. Requirements in this standard relating to housekeeping.

e. Proper response to fiber release episodes.

f. Each such employee must be so trained at least once a year.

9-2. Contractor Personnel

a. While OSHA required training of outside personnel, whether performing floor maintenance, other custodial services, maintenance or renovation work, is not the direct responsibility of APG, it is imperative that evidence of this training be presented to the APM and documented. Where asbestos is an issue, copies of training for all individuals providing services shall be kept on file.

b. Training requirements will vary, depending upon the type of material (friable vs. non-friable) tasks involved, and the extent of asbestos disturbance. To evaluate whether training is adequate, it may be necessary to consult with the APM, who will have a good working knowledge of applicable regulations.

c. For workers who will be performing activities defined by OSHA as Class I, II, III, or IV, where construction activities impact asbestos materials, the contractor employer is required to have a *Competent Person* present to supervise the work. This individual must have specialized training over and above that of the workers he/she oversees. This training shall also be evaluated and documented.

10. RECORDKEEPING

The AMT must meet the following requirements with respect to maintenance of records associated with asbestos-related activities within the facility.

10-1. Asbestos Survey Records

Aberdeen Proving Ground has relied upon the survey reports, bulk sampling and laboratory analysis records to demonstrate that certain suspect building materials in buildings constructed no later than 1980 do not contain asbestos. Without this corrobative information, these materials would have to be presumed to contain asbestos. Therefore, it is imperative that this data be maintained for as long as they are relied upon to rebut the presumption. The AMT shall gather and maintain all records pertaining to asbestos sampling and surveys conducted at APG.

10-2. Asbestos Abatement Records

Asbestos abatement records must be maintained for six (6) years or for as long as they are relied upon to rebut the presumption of a suspect asbestos containing material.

10-3. Personnel Training Records

Personnel training records must be maintained for one (1) year beyond the last date of employment for each employee who has received such training.

10-4. Medical Surveillance Records

Medical surveillance records must be maintained for thirty (30) years beyond the last date of employment for each employee who has received such training.

APPENDIX A

APPENDIX A
Federal, State, and Army Regulations and Guidelines

Appendix A includes an overview of the Federal, State, and Army Regulations and Guidelines that pertain to the management and removal of asbestos containing materials. Prior to beginning any asbestos project, the full text of the regulation should be reviewed to determine all applicable requirements.

1. FEDERAL REGULATIONS

1-1. 40 CFR Part 61 Subpart M - EPA National Emissions Standards for Hazardous Air Pollutants

a. Section 112 of the Clean Air Act (42 U.S.C. 7401 and following sections), enacted in 1970, requires the EPA to address hazardous air pollutants. The following year, EPA designated asbestos as a hazardous air pollutant under the Act, and later issued its National Emission Standard for Asbestos (40 CFR 61.140-157) as one of the NESHAP.

b. In general, the asbestos NESHAP requires that the owner or operator of a facility or of a renovation or demolition activity at the facility –

(1) Inspect at least the area of the facility to be renovated or demolished for the presence of asbestos.

(2) Remove, transport and dispose of RACM, as defined below, without releasing visible emissions, usually by using wet removal methods.

(3) Notify the EPA and the MDE in advance of the removal, above specified project amounts or annual amounts, of these regulated ACM. Note: All demolition projects require notification, regardless of presence, or absence, of asbestos.

(4) Dispose of regulated asbestos-containing waste or convert it to non-asbestos material at an EPA-approved facility, and have a waste shipment record, signed by the waste generator, transporter(s) and disposal facility, returned promptly to the owner or operator.

c. NESHAP Coverage

(1) The asbestos NESHAP covers most asbestos removed from buildings other than single-family houses or apartments of 4 or fewer units, which are not addressed by the standard. Before any renovation or demolition project, the affected area must be thoroughly inspected for the presence of asbestos. (The OSHA asbestos in construction standard describes requirements for this inspection for most buildings; the EPA AHERA standard does so for K-12 schools).

(2) The standard requires agency notification (para.145(b)), control of asbestos emissions (para.145(c)), and control of asbestos waste disposal (para.150), for removing regulated ACM (defined below) of at least the following threshold amounts (para.145(a)) –

(a) 260 linear feet (80 meters) on pipes.

(b) 160 square feet (15 square meters) on other facility components.

(c) 35 cubic feet (1 cubic meter) off facility components where the length or area could not be measured previously.

(d) All demolition projects, even if no asbestos is present.

(3) These amounts apply to a single renovation or demolition project. They also apply to work over a calendar year, such as from a series of renovations, demolitions, or an operations and maintenance program.

(4) For demolitions involving smaller amounts of regulated ACM, or a facility being demolished under a State or local government order because it is structurally unsound and in danger of imminent collapse, certain notification and controls are retained, but some are eliminated. (See below for descriptions.)

(5) For the NESHAP, regulated RACM is essentially ACM that may release fibers during or after the removal work. More formally, it is defined (par.141) as:

(a) Friable ACM, that is, ACM which, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

(b) Category I nonfriable ACM (packing, gasket, resilient floor covering, or asphalt roofing product ACM) that has become friable, or will be or has been sanded, ground, abraded, or cut (but not sheared, sliced or punched).

(c) Category II nonfriable ACM (other nonfriable ACM) that has a high probability of becoming or has been crumbled, pulverized, or reduced to powder by the forces expected to act on the material.

(6) Based on this definition, Category I nonfriable ACM that has not and will not become friable, sanded, ground, abraded, cut, sawed, sheared, sliced, or punched and Category II nonfriable ACM that has not and will not become crumbled, pulverized, or reduced to powder, are not RACM, and need not be removed prior to demolition.

d. Notification: For renovations involving the removal of RACM above the threshold amounts, and for all demolitions, the owner or operator must notify the EPA and MDE ten (10) working days in advance on a project-by-project basis or annually (par.145(a)). Each individual project is covered, even if some or all of them are below the threshold amounts, when the threshold amounts are met or exceeded over a calendar year by all of the activities at a facility together (par.145(a)(4)(iii)). Note: Individual O&M activities which remove an amount of RACM above the notification threshold must be separately notified as specific planned projects.

e. Controls

(1) In general –

(a) Adequately wet all RACM (para. 145(c)(6)). (Note: user should become familiar with EPA Booklet, "Asbestos/NESHAP Adequately Wet Guidance" (Dec. 1990).) Certain exceptions are described below for using HEPA filtered control of stripping or leak-tight wrapping. Another exception is if the temperature at the point that would be wet is below 32°F (O°C), in which case (para. 145(c)(7)): (Note that EPA must give written permission for dry removal, except for freezing weather conditions.)

1. Remove facility components with RACM in units or sections to the maximum extent possible.

2. Record temperatures at the start, middle and end of the workday, and keep records on site at least 2 years.

(b) Carefully lower RACM to the ground or floor (do not drop, throw, slide or otherwise damage or disturb it) (para. 145(c)(6)); if RACM is removed over 50 feet (15 meters) above ground level, transport it in leak-tight chutes or containers (para. 145(c)(6)(iii)).

f. Before demolishing a building by burning, remove all ACM, including friable ACM, Category I nonfriable ACM, and Category II nonfriable ACM, in accordance with the NESHAP (para. 145(c)(10)).

g. Before a renovation or demolition that would break up, dislodge or similarly disturb RACM or preclude access to it for subsequent removal, remove all affected RACM (para. 145(c)(1)); except that the affected RACM need not be removed if the RACM is:

(1) Category I nonfriable ACM not in poor condition or friable.

(2) Category II nonfriable ACM unlikely to be made friable during or after the work.

(3) On a facility component encased in concrete or similarly hard material and is kept adequately wet whenever exposed during demolition.

(4) Untested because it was inaccessible until demolition, and the demolition has made its removal unsafe. This RACM and any asbestos-contaminated waste must be kept adequately wet until their disposal as asbestos-containing waste.

h. To remove a facility component containing, covered or coated with RACM, in units or sections –

(1) During removal, adequately wet RACM exposed, and carefully lower each unit or section (do not drop, throw, slide or otherwise damage or disturb the RACM) (para. 145(c)(2)).

(2) After removal, strip it of RACM, keeping the RACM adequately wet during stripping, or use a HEPA filtered local exhaust ventilation and control system during stripping (paras. 145(c)(4)).

(3) If it is a large facility component (e.g., reactor vessel, large tank, steam generator, but not a beam), it need not be stripped if it is encased in leak-tight wrapping with an asbestos danger label and handled without disturbing or damaging the RACM (para. 145(c)(5)).

i. To strip RACM from a facility component remaining in the facility (para. 145(c)(3)), adequately wet the RACM during stripping, unless the owner or operator –

(1) Has written approval by the EPA or designated agency (with the approval document on site) based on safety hazard or unavoidable equipment damage.

(2) Uses an alternative control method: HEPA filtered local exhaust ventilation and collection system, a appropriate glove bag system, leak-tight wrapping before dismantling, or other EPA-approved method equivalent in its control efficiency (with the approval document on site).

j. Waste Disposal. RACM waste must meet NESHAP wetting and labeling requirements (para. 150). In general, waste collection, processing, packaging and transporting asbestos-containing waste must yield no visible emissions of asbestos to the outside air. This is generally met by adequately wetting asbestos-containing waste –

(1) For most waste disposal, the waste is sealed in leak-tight containers or wrapping labeled with OSHA asbestos warning labels, the names of the waste generator, and the location of waste generation (para. 150(a)(1)), and deposited as soon as practical (paras. 150(b)(1),(2)) at a regulated waste disposal site or a facility that converts asbestos waste to asbestos-free waste approved by the EPA and operated as described in sec.155.

(2) For demolitions where some RACM was not removed beforehand, the asbestos-containing waste must be kept wet after demolition, during handling and loading for transport. The waste may be sealed in leak-tight containers or wrapping or transported and disposed of in bulk (para. 150(a)(3)).

(3) The EPA-approved alternative methods of emission control during waste disposal may be used (para. 150(a)(4)).

k. Vehicles transporting asbestos-containing waste must be visibly marked with asbestos danger signs during loading and unloading of waste (para. 150(c)).

(1) For all asbestos-containing waste being transported off the generating building site, a waste shipment record must be completed by the facility or removal project owner or operator.

(1) For all asbestos-containing waste being transported off the generating building site, a waste shipment record must be completed by the facility or removal project owner or operator. The waste shipment record must identify the EPA (or its designated agency) office, waste generator, waste transporter(s), and disposal site or conversion facility; and characterize and certify the correctness of the classification, packing, marking and labeling of the waste (para. 150(d)(1)).

(2) The waste shipment record must be –

(a) Signed by representatives of the owner or operator, the transporter(s) and the disposal site or conversion facility.

(b) Returned to the owner or operator within 35 days after its departure from the building (para. 150(d)(1),(3)). (If it is not returned within 45 days, this must be reported to the EPA (para. 150(d)(4)).)

(c) Retained for at least 2 years (para. 150(d)(5)).

(3) Make all records relating to waste disposal available for EPA inspection (para. 150(e)), with the following exceptions-

(a) Nonfriable ACM waste that did not become crumbled, pulverized, or reduced to powder need not meet NESHAP wetting and labeling requirements (para. 150(a)(5)).

(b) Category I nonfriable ACM waste that has not nor will not become friable, sanded, ground, cut, or abraded need not be deposited at a regulated waste disposal site or waste conversion facility (para. 150(b)(3)).

1-2. 40 CFR Part 763 - EPA Asbestos Hazard Emergency Response Act

a. Signed into law on October 22, 1986.

b. Required EPA to developed regulations which provide a comprehensive framework for addressing asbestos problems in public and private elementary and secondary schools. The regulations had to address –

(1) The inspection of all public and private school buildings for ACBM.

(2) The identification of circumstances requiring response actions involving friable ACM.

(3) Friable ACM means ACM, when dry, which may be crumbled, pulverized or reduced to powder by hand pressure and includes previously non-friable material which becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand.

(4) A description of the appropriate response actions involving friable ACM.

(5) The implementation of response actions involving friable ACM, including non-friable ACM that becomes friable when being worked on.

(6) The establishment of a reinspection and periodic surveillance program for ACM.

(7) The establishment of an operations and maintenance program for friable ACM.

(8) The preparation and implementation of AMPs by local educational agencies (LEAs) and the submission of the management plans to State Governors.

(9) The transportation and disposal of friable waste ACM from schools.

(10) A model accreditation plan for persons who inspect for asbestos, develop management plans, and design or conduct response actions.

(11) An accreditation program for laboratories which analyze asbestos bulk and air samples.

c. Summary of AHERA regulations. Regulations were issued as Asbestos-Containing Materials in Schools; Final Rule and Notice (40 CFR Part 763) –

(1) Requires local education agencies (LEAs) to identify friable and nonfriable ACM in public and private elementary and secondary school buildings. Inspections of schools in existence at the time the standard was issued must have been completed by October 12, 1988. Buildings acquired after October 12, 1989, which will be used as schools, must be inspected prior to use as a school building (for emergency use they must be inspected within 30 days).

(2) Inspections and reinspections must follow the protocol specified in the standard (763.85), as must sampling (763.86), analysis (763.87) and assessment (763.88).

(3) Every time an assessment or reassessment is performed the accredited inspector must provide a written assessment of all friable known or assumed asbestos-containing building material (ACBM) in the school building.

(4) The LEA must have submitted management plans to the Governor of their State by October 12, 1988, begun implementation of the management plans by July 9, 1989, and completed implementation in a timely fashion.

(6) The LEA must use accredited persons to conduct inspections, reinspections, and assessments, develop management plans, or perform response actions involving friable ACM, including non-friable ACM that becomes friable when being worked on.

(7) The LEA must provide for the transportation and disposal of friable asbestos in accordance with EPA guidance documents.

(8) The LEA must ensure that all maintenance and custodial employees are properly trained according to Federal and/or State regulations.

(9) The LEA must ensure that workers and building occupants, or their legal guardians, are informed at least once each school year about asbestos inspections, reinspections, response actions involving friable ACM, and post-response action activities, including periodic reinspection and surveillance activities that are planned or in progress.

(10) The LEA must provide short term workers who may come in contact with ACBM with information about the location of ACM and material assumed to be ACBM.

(11) Warning labels, meeting the requirements of the standard, must be posted.

(12) Management plans must be available for inspection.

(13) A person must be designated to ensure that the requirements of the standard are met. The designated person must receive adequate training to perform all the duties required by the standard.

(14) Reinspections of schools must be performed at least once every three years after a management plan is in effect. The reinspection must follow the protocol set forth in the standard.

(15) The LEA must select and implement appropriate response actions involving friable ACM consistent with inspections and assessments which have been conducted by accredited inspectors Accepted response actions involving friable ACM are outlined in 763.90.

(16) The LEA must implement the AMP whenever any friable ACBM is present or assumed to be present in a building it leases, owns or otherwise uses as a school building. Asbestos Management Plan activities must follow the specifications of 763.91. Training of individuals involved with AMP activities must follow 763.92.

(17) At least once every 6 months after a management plan is in effect, a periodic surveillance of school buildings containing known or assumed ACBM must be performed.

(18) Management plans must be developed according the requirements of 763.93.

(19) Records associated with ACM in schools must be maintained in accordance with 763.94.

1-3. Asbestos School Hazard Abatement Reauthorization Act

a. Enacted on November 28, 1990.

b. Applies to public and commercial buildings.

c. Did not require public and commercial buildings to perform inspections for ACM.

d. Expanded the accreditation requirements of AHERA to apply to certain persons who work with asbestos in public and commercial buildings. Specifically, accreditation is required for any person engaged in –

(1) Inspecting for ACM.

(2) Designing ACM response actions involving friable ACM, including non-friable ACM that becomes friable when being worked on.

(3) Conducting response actions involving friable ACM. The number of training hours for asbestos abatement worker training was increased from 32 to 40.

(4) Provided for a civil penalty for contractors who failed to comply with Toxic Substances Control Act accreditation.

1-4. The Occupational Safety and Health Act

a. The federal Occupational Safety and Health Act (OSH Act) is the primary source of regulation of an employer's obligation to provide a safe and healthful workplace. The OSH Act (1) requires that each employer comply with the occupational safety and health standards issued by OSHA; and (2), even in the absence of any specific standard, the Act also imposes a general duty on each employer to provide a workplace that is free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees.

b. Public sector workers in states with their own OSHA programs can have standards equal to or more stringent than OSHA. The EPA "Asbestos Abatement Projects: Worker Protection Rule," (40 CFR 763, Sub-part G) extends similar protection to publicly employed workers involved in asbestos abatement work. For schools, the AHERA regulation (40 CFR 763, Sub-part E) sets forth training requirements for abatement, custodial and AMP workers and describes work practices for AMP work. The ASHARA regulation extended these training requirements to all public and commercial buildings.

c. The OSHA has developed three specific standards governing exposure to asbestos in the workplace: the construction standard, the shipyard standard, and the general industry standard. In addition to these, this Appendix also briefly describes other OSHA standards of more general applicability, as well as EPA and DOT regulations that apply to asbestos.

d. Major revisions to asbestos-specific standards were published in the Federal Register on August 10, 1994, and additional changes were published on June 29, July 13, and September 29, 1995. In addition, OSHA has issued a compliance directive regarding these revisions, Instruction CPL 2-2.63 dated November 3, 1995. The discussion includes all changes made as of the date of publication. The reader should verify whether additional changes have been made as of the time of use.

1-5. 29 CFR 1926.1101 – OSHA Asbestos in Construction Standard

a. Most activities within the scope of this Program are subject to the asbestos in construction standard, which covers all construction activities performed by employees, regardless of the primary activity of the employer; see paragraph (a)(7) of the standard. For example, maintenance or removal of an asbestos-containing gasket, even if performed in an industrial plant, by the employer's own maintenance staff, is covered under the construction standard. 1926.1101 regulates asbestos exposure in all work as defined in 29 CFR 1910.12(b), including but not limited to the following –

(1) Demolition or salvage of structures where asbestos is present.

(2) Removal or encapsulation of materials containing asbestos.

(3) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos.

(4) Installation of products containing asbestos.

(5) Asbestos spill/emergency cleanup.

(6) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed.

(7) Coverage under the OSHA standard is based on the nature of the work operation involving asbestos exposure, (Class I, II, III, and IV).

b. Examples of work falling outside the scope of the construction standard are: general housekeeping in industrial and commercial operations where asbestos may be contacted but not disturbed , and brake and clutch repair (general industry standard); and asbestos-related activities in shipyards (shipyard standard).

c. General

(1) Exposure, Assessments and Monitoring

(a) Initial monitoring of employees who are, or may reasonably be expected to be, exposed to the time-weighted average (TWA) of 0.1 fibers per cubic centimeter or the excursion limit (EL) of 1 fibers per cubic centimeter (30 minute average) unless data generated after March 31, 1992 or objective data show that the TWA and EL will not be exceeded.

(b) Periodic monitoring required unless initial monitoring, if required, or periodic monitoring statistically indicates that the employee exposures are below the TWA or EL.

(c) Additional monitoring needed when work changes or the other reason may cause new or additional exposures above the TWA or EL.

(d) Employer must notify employee of monitoring results.

(2) General controls

(a) Use wet methods insofar as practicable.

(b) Compressed air to remove asbestos is prohibited (unless in enclosed ventilation systems).

(c) Employee rotation to reduce exposure is prohibited.

(d) When vacuuming asbestos containing waste and debris, HEPA vacuums are required and must be used so as to minimize asbestos dispersal.

(e) Dry sweeping and shoveling only where vacuuming and/or wet cleaning are not feasible.

(f) Asbestos waste must be sealed in impermeable labeled bags or containers so as to minimize asbestos dispersal.

(3) Controls for Care of Asbestos Containing Flooring.

(a) Sanding is prohibited.

(b) Stripping of finishes must use low abrasion pads at speeds lower than 300 rpm and wet methods.

(c) Burnishing or dry buffing may be used only on floors with sufficient finish so that pad does not contact ACM.

d. Identification of Materials and Communication

(1) Building/facility owner (which includes a lessee) must inform employers of employees, and employers must inform employees, who perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and PACM in such areas.

(2) Presume or inspect surfacing, thermal system insulation (TSI), or resilient flooring material in housekeeping area.

(a) Thermal System Insulation and sprayed-on or troweled-on surfacing materials in buildings or substrates constructed before 1980 are PACM; resilient flooring material installed before 1980 is also presumed to be ACM, although the term "PACM" is not used for it.

(b) Can rebut presumptions –

1. For PACM, an AHERA inspection, or testing of the material being worked on by an AHERA-accredited inspector or a Certified Industrial Hygienist, is required; a nationally recognized testing program NVLAP or equivalent must be used for analysis.

2. For resilient flooring material, an industrial hygienist must use recognized analytical techniques.

e. Warning labels must be placed on products containing asbestos, including waste containers and, where feasible, installed products, unless asbestos fibers are bound so that no reasonably foreseeable work will release them above TWA or EL, or when less than 1%.

f. Training

(1) Employer at no cost to employee who performs housekeeping operations in areas which contain ACM or PACM must provide an asbestos awareness training course (2 hours) which covers (1) health effects of asbestos exposure; (2) location of ACM and PACM; (3) recognition of ACM and PACM damage; (4) housekeeping requirements; and (5) proper response to fiber release episodes.

(2) For employees exposed to asbestos at or above the TWA or excursion limit, the employer must provide more extensive training which covers (1) health effects of asbestos exposure; (2) smoking risks; (3) nature of asbestos operations that could result in asbestos exposure; (4) engineering controls and work practices; (5) respirators and protective clothing; (6) medical surveillance and (7) warning signs and labels.

(3) Record Retention

(a) Exposure monitoring records: 30 years. Records based on objective data: while employer relies on data.

(b) Medical surveillance records: Employment plus 30 years.

(c) Training records: Employment plus one year.

(d) Data to rebut PACM: While employer relies on data.

g. Requirements when Asbestos Levels Exceed TWA or Excursion Limit.

(1) All items required above.

(2) Regulated areas, which includes demarcating the area from the rest of the workplace, limiting access to authorized personnel, and posting warning signs.

(3) Feasible engineering controls and work practices to reduce exposures to PEL and excursion limit and below.

(4) Respiratory protection which meets selection requirements and respiratory protection program.

(5) Protective clothing, including inspection for rips or tears. Laundering allowed under certain conditions.

(6) Hygiene facilities which include a change room, showers, and lunchroom facility.

(7) Medical surveillance which includes an annual medical examination whenever an employee is exposed at or above the PELs.

(8) Additional training.

1-6. DOT Hazardous Material Rules

a. The Department of Transportation (DOT) issues hazardous material rules (HMR) under the Hazardous Materials Transportation Act, to help ensure that adequate information is available to transporters for their safety and that of the public, about materials being shipped commercially over public roads, waterways and airways.

b. The HMR does not cover asbestos fixed in a binder such as cement, plastic, asphalt, resins or mineral ore (e.g., non-friable ACM that has not become crumbled, pulverized or reduced to powder), or asbestos containing manufactured products (e.g., pipe gaskets). Similarly, the HMR does not cover shipments under 1 pound of friable ACM.

c. Packaging of ACM for commercial transportation must meet hazardous material rule requirements (found mostly in 49 CFR 171-173) and generally be protective, marked and labeled.

(1) Small quantities

(a) Bulk samples over 1 ounce (30 grams) each of friable ACM are subject to the HMR if the whole package contains 1 pound or more.

(b) A "small quantity" shipment of bulk samples is exempt from the HMR if the samples are each 1 ounce (30 grams) or less in cushioned, securely sealed and packed inner containers of plastic (at least 8 mil (0.2 mm) thick), glass, metal or earthenware.

(c) The entire, strong package must weigh 64 pounds (29 kg) or less, and be specially marked.

(d) Packages of air sample filters are not subject to the HMR, since they contain less than 1 pound of friable asbestos.

(a) A "limited quantity" shipment is exempt from marking if it weighs 66 pounds (30 kg) or less with inner packaging up to 11 pounds (5 kg) each in the strong outer packaging.

(b) It is also exempt from labeling unless it is being shipped by air.

(3) Labeling. Packages must generally have a class 9 label, unless excepted. (See "Small quantities," "Limited quantities," and "DOT exceptions".)

(4) Shipping papers. Entries used in the hazardous material description on shipping papers are –

(a) Reportable Quantity, RQ, if 1 lb or more friable asbestos.

(b) WASTE for waste material, if applicable.

(c) ASBESTOS shipping name; for domestic transportation only; see section 1-6.c.(6)(a).

(d) MIXTURE, for asbestos mixed with a binder or filler, etc.

(e) Class 9, Miscellaneous Hazardous Materials, includes asbestos.

(f) NA2212, North American identification number; for domestic transportation only; see section 1-6.c.(6)(a).

(g) PG III Packing Group; for domestic transportation only; see section 1-6.c.(6)(a).

(h) LTD QTY, Limited quantity, if applicable.

(i) 20 OZ Total quantity of material described; may abbreviate unit.

(j) For international transportation requirements, see section 1-6.c.(9).

(5) Marking

(a) Packaging must be marked, except for small quantities, limited quantities, and exempt packages. See "Small quantities."

(b) Entries for non-bulk packaging:

1. RQ, Reportable Quantity, if 1 lb or more friable asbestos.

2. WASTE, for waste material, if applicable, or use EPA mark.

3. ASBESTOS, Shipping name; for domestic transportation only; see section 1-6.c.(6)(a).

2. WASTE, for waste material, if applicable, or use EPA mark.

3. ASBESTOS, Shipping name; for domestic transportation only; see section 1-6.c.(6)(a).

4. MIXTURE, For asbestos mixed with a binder or filler, etc.

5. NA2212, North American identification number; for domestic transportation only; see section 1-6.c.(6)(a).

6. Note: See international transportation requirements, below.

7. A bulk packaging (uncommon for asbestos waste shipments) must be marked with a panel, placard or other display.

(6) Shipping Limitation: For domestic transportation, asbestos shipments are limited to 440 pounds (200 kg) by aircraft or passenger-carrying railcars, unless the asbestos is stabilized in a binder.

(7) Vehicle Marking: A vehicle transporting asbestos-containing waste subject to the HMR must be marked with asbestos danger signs during loading and unloading of the waste.

(8) Waste Shipment Record

(a) The record must be completed as required for each shipment of ACM waste subject to the HMR.

(b) A copy signed by the transporter must be given to the waste generator, (i.e., the building owner or operator, such as a maintenance or abatement contractor) when the waste leaves the building site, and a copy signed by the disposal site must be received in 45 days.

(c) If the record is not received within 35 days, the transporter or disposal site must be contacted to determine the status of the waste shipment.

(9) International transportation

(a) The HMR defines –

1. Crocidolite asbestos as "blue asbestos."

2. Amosite and mysorite asbestos as "brown asbestos."

3. Chrysotile, actinolite, anthophyllite and tremolite asbestos as "white asbestos."

(b) Shipping limitations–

1. "Blue" or "brown" asbestos, other than a "small quantity" shipment or ACM which is stabilized in a binder (e.g., nonfriable ACM in good condition; see "DOT exceptions"), is forbidden from aircraft or passenger-carrying railcars.

2. "White" asbestos is limited to 440 pound (200 kg) shipments by aircraft or passenger-carrying railcars, unless it is similarly stabilized in a binder.

3. Information– For international transportation, the following United Nations (UN) shipping names, identification numbers and packing groups must be used. (They may also be used for domestic transportation.)

aa. WHITE; UN2590

bb. BROWN and BLUE; UN2212

cc. Packaging Group III for White; II for Brown and Blue; II and III are medium (for more hazardous asbestos) and minor; use II if mixed shipment.

dd. Marking mixed international shipments – When asbestos of two or more UN descriptions are mixed in an international shipment, each is listed on the mark and shipping papers. For example, a shipping paper might show: "RQ, Waste blue and white asbestos mixture, 9, UN2212 and UN2590, PG II, Ltd Qty, 22 lbs."

(10) DOT Exceptions

(a) The HMR does not cover asbestos fixed in a binder such as cement, plastic, asphalt, resins or mineral ore (e.g., non-friable ACM that has not become crumbled, pulverized or reduced to powder), or asbestos containing manufactured products (e.g., pipe gaskets).

(b) The HMR does not cover shipments under 1 pound of friable ACM.

(c) Packaging of ACM must meet specific requirements, but need not meet HMR performance oriented packaging specifications for Packing Groups II and III.

2. STATE REGULATIONS – COMAR 26.11.21

a. Enacted July 16, 1990.

b. Applies to any person or organization that performs or intends to perform an asbestos project in Maryland

c. Requires notification to Maryland Air Radiation Management Administration (ARMA).

d. Licensing of business entities or public units is required.

e. Worker protection requirements include –

(1) Respiratory protection program.

(2) Physical examination.

(3) Training – initial/refresher.

(a) Supervisors – 5 day/8 hour.

(b) Workers – 4 day/8 hour.

(c) O&M – 6 day/4 hour.

(4) Maryland Regulation 26.11.23 requires a photo certification for asbestos activities in schools for all AHERA disciplines.

(5) Respirators and disposable protective clothing.

(6) No smoking eating or drinking in work area.

(7) Supervisor must be present at jobs subject to NESHAP.

2-1. NESHAP Projects in Maryland

a. Notify 10 working days in advance.

b. Post danger and project notification signs (3 days in advance).

c. 6 mil plastic sheeting, duct tape, or equivalent waterproof tape.

d. Wetting of asbestos with water-surfactant solution.

e. Work practice standards .

f. Cleaning and air monitoring procedures.

g. Use negative pressure.

h. No glovebag techniques permitted for NESHAP operations, unless specifically approved through a variance.

2-2. Non-NESHAP Projects in Maryland

a. Notify in writing before project begins.

b. Remove friable material prior to demolition.

c. Wet the asbestos.

d. Isolate and contain asbestos to be removed or encapsulated.

e. Minimize particulate asbestos.

f. No visible residue can remain.

g. Post danger signs at abatement locations.

2-3. Operations & Maintenance (O&M)

a. Defined as removal, encapsulation, or disturbance of friable ACM where the amount is less than 10 sq. ft. or 20 linear ft. and is associated with small repairs or maintenance.

b. Does not require notification to MDE.

c. Does require O&M training.

d. Projects performed by business entities or public units, must be done under a license.

(1) Disposal –

(a) Seal in 6 mil bags.

(b) Danger labels, number of person's license to remove, and date bag sealed.

(c) Segregate from other waste and keep in secure area.

(d) Remove waste not later than 24 hours after project completion for non-NESHAP projects.

(e) Remove waste not later than 7 days after project completion for NESHAP projects.

(f) Interim storage provisions.

(g) Transport to State approved landfill.

(h) May not use open vehicle.

(i) Submit copy of disposal receipt to MD within 10 days after disposal.

(2) Records; 6 year retention of the following –

(a) Name and address of supervisor responsible for project.

(b) Location and description of project, estimated amount of asbestos removed or encapsulated.

(c) Starting and completion dates.

(d) Summary of procedures used to comply with requirements.

(e) Name and address of waste disposal site.

3. ARMY REGULATIONS

3-1. Army Regulation 200-1 (Chapter 8 – Asbestos Management)

a. The intent of AR 200-1, Chapter 8 – Asbestos Management, is to prevent human exposure to asbestos hazards on, or in Army-owned or leased properties through proactive measures and policies that comply with all applicable laws and regulations.

b. Army Regulation 200-1 requires that installations, activities, tenants, and Civil Works Facilities (CFW) will–

(1) Comply with all legally applicable and appropriate Federal, state, local laws and regulations.

(2) Exclude asbestos from all procurements and uses where asbestos-free substitute materials exist.

(3) Minimize asbestos releases to the utmost extent possible.

(4) Establish and execute AMPs.

(5) Establish AMTs.

(6) Program and budget resources to identify, manage and control exposure to asbestos.

(7) Conduct periodic inspection surveys to identify the existence, extent, and condition of all asbestos. As a priority, conduct asbestos surveys in all housing units and those buildings which will be renovated, demolished or transferred from Army use.

(8) Perform an exposure assessment and risk assessment for all locations containing asbestos.

(9) Take immediate corrective action where possible asbestos related health hazard has been identified.

(10) Notify facility occupants of any asbestos-related heath hazard.

(11) Assess the relative health risks for alternative control actions.

c. Note: AR 200-1, Chapter 8 stipulates that, *"asbestos should not be removed for the sole purpose of eliminating asbestos."*

3-2. Army Regulation 420-70 (Chapter 3, Section II)

The AR 420-70 was developed to assist the Department of the Army facilities personnel in implementing an asbestos management program. Army Regulation 420-70 was developed to provide an in-depth explanation of the steps to be taken to organize and implement asbestos abatement options.

4. REGULATORY GUIDELINES

4-1. Department of the Army Pamphlet 200-1 (DA PAM 200-1), Environmental Protection and Enhancement

a. The basic requirements to assist installations in complying with AR 200-1, chapter 8, may be found in PWTB-420-70-8. The PWTB serves as the Army Asbestos Management Program guidance and contains technical information for asbestos handling, management, abatement, and disposal. The installation can adapt the guidance in PWTB-420-70-8 to their facilities and operations, as appropriate.

b. The PWTB may be found at the Lead and Asbestos Web site (http://www.hqda.army.mil/acsimweb/fd/LeadAsbestos/pages/home.htm) for a listing of additional references. Technical assistance relating to health and environmental aspects of asbestos management can be obtained from USACHPPM. Managers should consult their environmental compliance coordinator network for sources of technical assistance.

4-2. Department of the Army, US COE CEGS 13280, Division 13, Asbestos Abatement Guide Specifications

This guide specification covers the requirements for removal, encapsulation, enclosure, encasement, or repair of friable and non-friable ACM. This guide is use in the preparation of project specifications and includes guidance for Class I, Class II, Class III and Class IV Operations as per 29 CFR 1926.1101 (OSHA), training requirements in accordance with 29 CFR 1926.1101, and USEPA 40 CFR 763.

4-3. Managing Asbestos in Place (Green Book)

a. The overall framework recommended for an asbestos O&M program is described in the EPA guidance document "*Managing Asbestos in Place* (Green Book)." Operationally, an AMP consists of administrative procedures, which mandate that specific work practices be used for

maintenance work involving ACM. This document contains suggestions for work practices to be used in such a Management Plan. To ensure that the work practices are applied as intended it is necessary to set up an administrative framework. This framework need not be complex. In fact, the more simple and straightforward the administration of the program, the more likely it is that it will perform reliably. There are several elements necessary for an AMP to be successful. They include–

(1) Notification - A program to inform workers, tenants, and building occupants where ACM is located, and how and why to avoid disturbing the ACM. All persons affected should be properly informed.

(2) Surveillance - Regular ACM surveillance to note, assess, and document any changes in the ACM's condition.

(3) Work Practices - O&M work practices to avoid or minimize fiber release during activities affecting ACM.

(4) Record-Keeping - To document O&M activities.

(5) Worker Protection - Medical and respiratory protection programs, as applicable.

(6) Training - Asbestos Program Manager, and custodial and maintenance staff training.

b. Additionally PWTB 420-70-8 requires that the following be implemented as well as part of an Management Plan

(1) Training for custodial and maintenance personnel in proper procedures for cleaning and maintaining buildings areas where ACM is present. Under theses circumstances, custodial service contracts must incorporate provisions for asbestos training and personal protective equipment.

(2) Development of a procedure to coordinate with the responsible member of the AMT before building demolition, renovation, mechanical upgrades or repairs are started in areas with ACM, and formulation of a schedule for periodic inspections of building areas with ACM.

APPENDIX B

Appendix B

Glossary of Terms

Accredited or ***accreditation*** when referring to a person or laboratory means that such person or laboratory is accredited in accordance with section 206 of Title II of the Act.

Air erosion means the passage of air over friable ACBM which may result in the release of asbestos fibers.

Asbestos means the asbestiform varieties of: Chrysotile (serpentine); crocidolite (riebeckite); amosite (cum- mingtonitegrunerite); anthophyllite; tremolite; and actinolite.

Asbestos-containing material (ACM) when referring to school buildings means any material or product which contains more than 1 percent asbestos.

Asbestos-containing building material (ACBM) means surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a school building.

Asbestos debris means pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

Asbestos Management Team (AMT) means the team that has been assembled at APG to oversee the management of asbestos containing materials on post.

Asbestos Management Plan (AMP) means the written program developed to outline the responsibilities and requirements for managing asbestos-containing materials at APG.

Aggressive method means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

Amended water means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

Class I asbestos work means activities involving the removal of TSI and surfacing ACM and PACM.

Class II asbestos work means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Competent person means, in addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).

Critical barrier means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Decontamination area means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Disturbance means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Encapsulation means the treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

Employee exposure means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Enclosure means an airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air.

Fiber means a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

Fiber release episode means any uncontrolled or unintentional disturbance of ACBM resulting in visible emission.

Friable when referring to asbestos-containing material means that the material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

Glovebag means not more than a 60 x 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

Homogeneous area means an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture.

Intact means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

Miscellaneous material means interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.

Nonfriable means material which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.

Operations and maintenance program means a program of work practices to maintain friable ACBM in good condition, ensure clean up of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage.

Presumed Asbestos Containing Material (PACM) means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(5) of this section.

Project Designer means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. Sec. 763.90(g).

Regulated area means: an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e) of this section.

Removal means the taking out or the stripping of substantially all ACBM from a damaged area, a functional space, or a homogeneous area in a school building.

Renovation means the modifying of any existing structure, or portion thereof.

Repair means returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release. Also means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

Surfacing material means material that is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal system insulation means material in a school building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.